REMARKS

In the non-final Office Action, the Examiner rejects claims 10, 11, 20, 21, 23, and

24 under 35 U.S.C. § 101 as directed to non-statutory subject matter; rejects claim 25

under 35 U.S.C. § 102(e) as anticipated by NAJORK et al. (U.S. Patent No. 6,263,364;

referred to hereinafter as "NAJORK '364"); and rejects claims 1-24 under 35 U.S.C. §

103(a) as unpatentable over NAJORK et al. (U.S. Patent No. 6,321,265; referred to

hereinafter as "NAJORK '265") in view of NAJORK '364. Applicants respectfully

traverse these rejections. Claims 1-25 remain pending.

Claims 10, 11, 20, 21, 23, and 24 stand rejected under 35 U.S.C. § 101 as

allegedly directed to non-statutory subject matter. In particular, the Examiner alleged

that "[d]ependent claims 11 and 21 include a 'carrier wave' which is non-statutory

because it does not fit into any of the three product statutory classes because it is non-

physical" (Office Action, pg. 2). Applicants respectfully traverse.

The Examiner has provided no basis for rejecting claims 10, 11, 20, 21, 23, and

24 under 35 U.S.C. § 101. The mere fact that claims 11 and 21 (as well as claim 24)

recite a carrier wave, **which is a type of computer-readable medium**, in no way means

that these claims are per se non-statutory. The Examiner's general allegation is

insufficient for establishing a *prima facie* basis for denying patentability. Applicants

invite the Examiner to review the U.S. Patent and Trademark's Examination Guidelines

for Computer-Related Inventions and the examples, which include a carrier wave claim,

provided at http://www.uspto.gov/web/offices/pac/dapp/pdf/compenex.pdf (see pages 37-

39). Carrier wave claims are not per se non-statutory. The Examiner has provided no

evidence to support the general allegation to the contrary. Applicants again request, if this rejection is maintained, that the Examiner specifically point out the basis for the rejection so that Applicants can address the Examiner's concerns.

Applicants also note that the Examiner alleged that claims 10, 20, and 23, from which claims 11, 21, and 24 depend, are directed to non-statutory subject matter "because they are broader than claims 11, 21, and 23" (Office Action, pg. 3). The Examiner has not provided a *prima facie* basis for denying patentability. The mere fact that claims 10, 20, and 23 are broader than claims 11, 21, and 24 is in no way a per se indication that these claims are non-statutory. If the Examiner maintains the rejection of claims 10, 11, 20, 21, 23, and 24 under 35 U.S.C. § 101, Applicants request that the Examiner specifically point out why the Examiner alleges that the features recited in claims 10, 20, and 23 are directed to non-statutory subject matter.

For at least the foregoing reasons, Applicants request that the rejection of claims 10, 11, 20, 21, 23, and 24 under 35 U.S.C. § 101 be reconsidered and withdrawn.

Claim 25 stands rejected under 35 U.S.C. § 102(e) as allegedly anticipated by NAJORK '364. Applicants respectfully traverse.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. See M.P.E.P. § 2131. NAJORK '364 does not disclose or suggest the combination of features recited in claim 25.

Claim 25 is directed to a method for crawling hyperlinked documents. The method includes prioritizing a plurality of links to hyperlinked documents to be crawled

and crawling a hyperlinked document using one of the prioritized plurality of links.

NAJORK '364 does not disclose this combination of features.

For example, NAJORK '364 does not disclose prioritizing a plurality of links to hyperlinked documents to be crawled. The Examiner relies on col. 2, line 58, to col. 3, line 27, of NAJORK '364 as allegedly disclosing this feature (Office Action, pg. 4). Applicants disagree.

At col. 2, line 58, to col. 3, line 27, NAJORK '364 discloses:

Every web crawler must maintain a data structure or set of data structures reflecting the set of URL's that still must be downloaded. In this document, that set of data structures is called "the Frontier." The crawler repeatedly selects a URL from the Frontier, downloads the corresponding document, processes the downloaded document, and then either removes the

URL from the Frontier or reschedules it for downloading again at a later time. The latter scheme is used for so-called "continuous" web crawlers.

When selecting a URL from the Frontier, the inventors have determined that it would often be desirable for the crawler to preferentially select certain URL's over others so as to maximize the quality of the information processed by the other applications to which the web crawler passes downloaded documents. For instance, the web crawler may pass downloaded pages to a document indexer. An index of documents on an Intranet or the Internet will be more accurate or higher quality if the documents of most interest to the users of the index have been preferentially updated so as to make sure that those documents are accurately represented in the index. To accomplish this, the web crawler might preferentially select URL's on web servers with known high quality content. Alternately, heuristics might be used to gauge page quality. For instance, shorter URL's might be considered to be better candidates than longer URL's.

In the context of a continuous web crawler, it may be desirable to prefer URL's on web servers whose content is known to change rapidly, such as news sites. It may be desirable to prefer newly-discovered URL's over those that have been previously processed. Among the previously processed URL's, it may be advantageous to prefer URL's whose content

has changed between the previous two downloads over URL's whose
content has not changed, and to prefer URL's with shorter expiration dates
over those with longer expiration dates.

This section of NAJORK '364 discloses the preferential selection of certain URLs to
crawl. This section of NAJORK '364 does not disclose or suggest that these URLs are
links to hyperlinked documents. Therefore, this section of NAJORK '364 cannot disclose
prioritizing a plurality of links to hyperlinked documents to be crawled, as required by
claim 25.

Since NAJORK '364 does not disclose prioritizing a plurality of links to
hyperlinked documents to be crawled, NAJORK '364 cannot disclose crawling a
hyperlinked document using one of the prioritized plurality of links, as also required by
claim 25.

For at least the foregoing reasons, Applicants submit that claim 25 is not
anticipated by NAJORK '364.

Claims 1-24 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable
over NAJORK '265 in view of NAJORK '364. Applicants respectfully traverse this
rejection.

Independent claim 1 is directed to a computer implemented method of crawling
hyperlinked documents. The method includes sending a request for additional links to
hyperlinked documents to a link manager; receiving a plurality of links to hyperlinked
documents to be crawled, where the plurality of links is selected by the link manager
based on priority; grouping the plurality of links to hyperlinked documents by host;
selecting a host to crawl next according to a stall time of the host; and crawling a

hyperlinked document from the selected host. NAJORK '265 and NAJORK '364 do not

disclose or suggest the combination of features recited in claim 1.

For example, NAJORK '265 and NAJORK '364 do not disclose or suggest

sending a request for additional links to hyperlinked documents to a link manager. The

Examiner relies on Figs. 2-4 and col. 5, line 53, to col. 6, line 6, of NAJORK '265 as

allegedly disclosing this feature (Office Action, pg. 5). Applicants disagree.

Fig. 2 of NAJORK '265 depicts the relationship between a set of first-in, first-out

(FIFO) queues 129 and a multiplexer 124 and demultiplexer 126. This figure does not

disclose or suggest sending a request for additional links to hyperlinked documents to a

link manager, as required by claim 1.

Fig. 3 of NAJORK '265 depicts an ordered set data structure 134 for keeping track

of the queues that are waiting to be serviced by threads. This figure does not disclose or

suggest sending a request for additional links to hyperlinked documents to a link

manager, as required by claim 1.

Fig. 4 of NAJORK '265 depicts a flowchart for enqueuing URLs into a set of

queues. This figure does not disclose or suggest sending a request for additional links to

hyperlinked documents to a link manager, as required by claim 1.

At col. 5, line 53, to col. 6, line 6, NAJORK '265 discloses:

> Given a set of URL's, the web crawler 102 begins downloading documents
> by enqueuing the URL's into appropriate queues 128. Multiple threads 130
> are used to dequeue URL's out of the queues 128, to download the
> corresponding documents or web pages from the world wide web and to
> extract any new URL's from the downloaded documents. Any new URL's
> are enqueued into the queues 128. This process repeats indefinitely or until
> a predetennined stop condition occurs, such as when all URL's in the
> queues have been processed and thus all the queues are empty. Multiple

threads 130 are used to simultaneously enqueue and dequeue URL's from multiple queues 128. During the described process, the operating system 120 executes an Internet access procedure 122 to access the Internet through the communications interface 104.

The web crawler's threads substantially concurrently process the URL's in the queues. When the web crawler is implemented on a multiprocessor, some of the threads may run concurrently with each other, while others run substantially concurrently through the services of the multitasking operating system 120.

This section of NAJORK '265 merely discloses the crawling of URLs. This section of NAJORK '265 in no way discloses or suggests a link manager. Therefore, this section of NAJORK '265 cannot disclose sending a request for additional links to hyperlinked documents to a link manager.

Applicants request that the Examiner specifically point out where in the above sections of NAJORK '265 sending a request for additional links to hyperlinked documents to a link manager is disclosed or withdraw the rejection.

For at least the foregoing reasons, Applicants submit that claim 1 is patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination.

Claims 2-9 depend from claim 1. Therefore, these claims are patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Independent claims 10, 12, and 20 recite features similar to features given above with respect to claim 1. Therefore, these claims are patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for reasons similar to reasons given above with respect to claim 1.

Claim 11 depends from claim 10. Therefore, this claim is patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 10.

Claims 13-19 depend from claim 12. Therefore, these claims are patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 12.

Claim 21 depends from claim 20. Therefore, this claim is patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 20.

Independent claim 22 is directed to a computer implemented method of crawling hyperlinked documents. The method includes storing a plurality of links to hyperlinked documents to be crawled; determining that more links to hyperlinked documents are desired; sending requests to multiple link managers for more links to hyperlinked documents; receiving additional links to hyperlinked documents from the link managers; selecting a host to crawl next according to a stall time of the host; and crawling a hyperlinked document from the selected host. NAJORK '265 and NAJORK '364 do not disclose or suggest this combination of features.

For example, NAJORK '265 and NAJORK '364 do not disclose or suggest sending requests to multiple link managers for more links to hyperlinked documents. The Examiner admits that NAJORK '265 does not disclose this feature and alleges that "[i]t would have been obvious ... to have modified the queues and indexing system of the combination to have operated the queues as a individual link managers so that links could

have still be provided to the web crawler in the event one of the queues experienced an interrupted connection with the web crawler" (Office Action, pg. 13). Applicants submit that the Examiner's allegation does not address the above feature of claim 22.

Claim 22 recites sending requests to <u>multiple link managers</u> for more links to hyperlinked documents. Therefore, even if, as alleged by the Examiner, NAJORK 265's queues and indexing system could reasonably operate as a link manager (a point that Applicants do not concede), the Examiner did not logically explain how or why one skilled in the art would seek to modify NAJORK '265's system to include multiple link managers to which requests for more links to hyperlinked documents can be made. Accordingly, the Examiner did not establish a *prima facie* case of obviousness with respect claim 22.

NAJORK '265 discloses that indexing system 116 includes an index of words used on the world wide web and addresses of the web pages that use each word (col. 4, lines 63-65). NAJORK '265 also discloses that web crawler 102 can access indexing system 116 in the process of downloading web pages from the world wide web (col. 4, lines 67, to col. 5, line 3). NAJORK '265 does not disclose or suggest, however, that indexing system 116 receives requests for more links to hyperlinked documents or sends additional links to hyperlinked documents. Therefore, the Examiner's allegation that indexing system 116 can somehow be construed to be a link manager is unsupported by the NAJORK '265 disclosure.

For at least the foregoing reasons, Applicants submit that claim 22 is patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination.

Independent claim 23 recites features similar to features recited above with respect to claim 22. Therefore, Applicants submit that claim 23 is patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for reasons similar to the reasons given above with respect to claim 22.
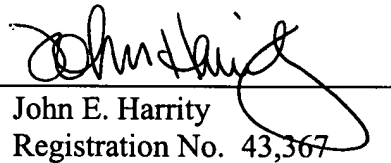
Claim 24 depends from claim 23. Therefore, Applicants submit that this claim is patentable over NAJORK '265 and NAJORK '364, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 23.

In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §

1.136 is hereby made. Please charge any shortage in fees due in connection with the

filing of this paper, including extension of time fees, to Deposit Account No. 50-1070

and please credit any excess fees to such deposit account.

Respectfully submitted,

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